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ΚΊΝΗΤΡΑ ΚΑΙ ΣΥΜΜΕΤΟΧΉ ΣΕ ΠΡΟΓΡΆΜΜΑΤΑ ΕΞ ΑΠΟΣΤΆΣΕΩΣ ΕΚΠΑΊΔΕΥΣΗΣ ΤΗΣ ΓΕΩΤΕΧΝΙΚΏΝ

MOTIVATION AND PARTICIPATION IN DISTANCE LEARNING PROGRAMS OF GEOTECHNICS

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This study explores the motivation of adults participating in distance learning and more specifically those that have a university background in Geotechnical Sciences.
An introduction to both the concepts of distance education and adult education is made, in order to present the scope of the study. Furthermore, a literature review concerning the terms “motivation” and “goal orientation”, as well as their respectful meaning is performed. Additionally, a reference is made to the longstanding motivation theories.The second part of the study consists of research involving a questionnaire that was provided to all participants, and an analysis of the gathered data, based on the quantitative analytical method. This particular research was carried out between February and March 2019 and the sample involved 85 adult trainees with a background in Geotechnical Science.

In this study, special attention was given to the presentation of the approach, the questions, the tool and the method used while conducting the research. To summarize, the results are compared to similar literature and the outcome of other related research studies.In conclusion, this study has shown that the motives for engagement in distance learning programs are in descending order of importance: general interest in attaining further education, professional progress, the exploration of newfound knowledge and horizons, and the belief that education and training should be lifelong. On the contrary, escaping from personal or family problems and social interactions seems to be the least important factor.

Keywords: adult education, adult trainees, distance education, motives, goal orientation.

1 INTRODUCTION

Many scientific definitions have been formulated for motivation, and most of them result in the fact that motivation is a psychological process through which a particular behavior towards a goal is maintained, stimulated and directed. That is, motivation is anything that moves, or drives a person into action (Kostaridou-Eyklides, 1999).

Motivation can be inherent or acquired. In the firs case, it has an inherited base such as instincts, whereas in the second, it is acquired through a learning processes with the interaction of the individual with the environment (Kostaridou -Eyklides, 1999).

Also, incentives are distinguished externally and internally. External incentives are the incentives that activate the organism through external effects. These are money, privileges, growth, promotion, prestige, social status, etc. They are provided by others to the trainee, for example, from the teacher to the student or from the manager to the employee (Kapsalis, 1996). The second category is internal incentives. Internal incentives refer to the involvement of individuals in activities for personal reasons, e.g. the feelings of pleasure and satisfaction that result directly from participation (Deci & Ryan, 1985). When individuals have internal incentives, they are

involved in activities that interest them, experience a sense of will, or operate without the help of external rewards and/or limitations (Deci & Ryan, 1985). Sources of internal incentives are challenge, curiosity, control and imagination (Schunk, Pintrich & Meece, 2010).

Many theories about motivation have developed different views on the mobilization of people, taking into account some of the parameters related to the perceptions of human nature as well as empirical results and scientific studies.

2 MOTIVATION AND DISTANCE LEARNING

C. O. Houle (1961) is one of the first to investigate the motivation and the reasons that may lead adult learners to participate in lifelong learning. He did so in his book titled “The inquiring mind”, where he interviewed trainees who had taken part in various adult education programs during their life. C. O. Houle studied the human factor more and did not focus on the education offered by an institution. Taking into account the results of the survey, it developed a typology of adult learners since, as it was proved, those were oriented in three main directions: goal-oriented, activity-oriented, and learning-oriented.

The next one dealing with this issue was Tough (1968). In his research, much like Houle, he uses interviews on a sample of thirty-five (35) participants to understand the motivation of those involved in self-directed learning. The results of Tough's research have largely confirmed Houle's research, particularly in terms of the desire to use or apply the knowledge or skill acquired by adults through learning. However, Tough points out the existence of three different patterns of learning (Tough, 1968).

Mezirow (1971) also dealt with this issue and used the term of “vision” defined by Becker, Geer & Hughes (1968) as a set of ideas and actions used by a person in a problematic situation. The way the person identifies a situation is characterized by four key features. The first is the setting of objectives, the second is the description of the organization in which the person acts, the third is the formal and informal rules through which the action is determined and the fourth is the fees and punishments.

Other researchers, such as Boshier (1971), worked on Houle's model, developed it further, and created the Education Participation Scale (EPS), focusing on learner types and on motivations from their orientations. These were grouped into the following categories:

a) Social relationships: Meet new friends
b) External expectations: Complying with the directives of those in authority
c) Social welfare: Wanting to serve others or the community
d) Professional advancement; for job advancement
e) Escape or stimulation: Alleviating boredom or escaping home or work routines
f) Cognitive interest: Engaged for the sake of learning itself

The EPS scale has been implemented in the years to come by many researchers in various learning environments of adult education and in different populations. Thus, the scale has been modified to include the following categories: (a) improvement of communication capacity, (b) development of social contacts, (c)

educational preparation, (d) professional advancement, (e) improvement of family relations, f) pursuit of social stimuli, (h) interest in learning in an object.

Patricia K. Cross (1981) has also been motivated by the conclusion that the degree of formal education and the educational level in which the individual is located is of great importance. Thus, based on the results of her research, the more people have been trained, the more they are interested in their lifelong learning.

The second set of concepts defines the research, as it refers to the incentives that motivate a particular category of people, i.e. adults that have been currently undergoing a higher education program (university level studies), and which, as mentioned, have been extensively studied in the international literature.

A closed-type questionnaire survey that was conducted by Papadopoulos and his colleagues in 2013, sought to compare the learning incentives of higher education students, both of traditional and distance learning backgrounds. Its purpose was to identify and compare the learning motivation between students of traditional and distance education and to explore its correlation with their academic success. The sample consisted of 378 undergraduate students in Greek higher education (N = 378). 240 of them were students of traditional education, while 138 of them were distance learning students. The results showed, that traditional education students recorded higher values in 3 of the 4 motivational factors for learning. On the contrary, distance learning students had more than twice as many hours to study. The motivation of traditional education students leading to academic success was both internal and external at the same time, while the corresponding motivation of those students that attended a distance education program was internal.

Another study that can be mentioned is the research that was conducted by Bobolaki Fotini in her postgraduate dissertation (Technical University of Crete, 2018). Its purpose was to investigate which different factors affect the academic performance of a person. Specifically, empirical research was carried out with a questionnaire, which was distributed to 250 students of the Technical University of Crete. The main research question of the dissertation was: “Is there is a connection between the basic psychological needs of students and their academic performance?”. The research concluded that the academic performance of students is not related to the under-study factors of "interpersonal relationships" and "feelings of pressure and inadequacy". In addition to that, the academic performance of both undergraduate and postgraduate students is not influenced by their gender, frequency of academic lectures and their personal opinion regarding whether or not their faculty motivates them. At the same time, it seems to be affected by the students’ attitudes towards the lessons and the level of interest they demonstrate towards school.

Moreover, Hartnett (2016) explored the nature of learning incentives in online environments and the factors that affect them. He concluded that motivation "has been shown to play an important role and essentially determines whether a trainee insists on a lesson, level of involvement, quality of work produced, and the magnitude of success" (Hartnett, 2016).

The Raghavan & Kumar (2007) survey included a sample of 454 students from the Open University of Malaysia and aimed to examine the socio-demographic profile of students participating in open and distance education, as well as determine the reasons that may lead employed people to participate in this specific form of educational programs. With the help of Boshier’s Education Participation Scale (EPS), this study found that adult learners are generally under the age of 39, relatively not wealthy, have less than 20 years of work experience, and have a high need for participation. The strongest motivation is professional development, followed by

cognitive interest and improved communication, while the lowest mentioned need is social arousal.

In 2018, Neroni et al (2018) investigated the relationship between motivation, targeting, and academic performance of adults participating in distance learning programs held by the Open University of the Netherlands. This survey used a very large sample of 1128 adults (18-75 years) who took an online questionnaire. The research question that was investigated was: “What is the predictive value of goal orientation on academic performance for adult distance learners?” A mixed model regression showed performance approach goal orientation to be a positive predictor of academic performance, whereas performance avoidance and work avoidance were negative predictors of academic performance. Non-significant results were found for mastery approach as well as for the mastery avoidance. These results confirmed the initial assumptions of this study.

3 DISTANCE LEARNING AND GEOTECHNICS

As society and technologies change rapidly and the amount of information continues to grow exponentially (Nagy, Farmer, Bui & Trancik, 2013), it has become increasingly important for people to keep pace with these developments throughout the lifetime as well as to participate in distance learning programs while growing older in their lives. In a time-limited environment, distance learning is a suitable educational alternative and should be based on studies about motivation, targeting and academic performance to the extent that we can make all the necessary correlations.

Geotechnicians, in specific, have to keep up with the increased demands of time. This is proved by the existence of many relevant postgraduate and distance courses organized by leading Universities both in Greece and abroad, such as the Agricultural University of Athens, the National and Kapodistrian University of Athens, the University of Patras, the University of the Aegean, the Hellenic Open University, Wageningen University & Research, as well as Private Institutions. And of course, research is being carried out and dissertations have been written, not only on the matter of distance learning for geotechnics, but also on the creation of appropriate educational material aiming at its success. This underlines the importance of distance learning for the Geotechnical sector.

In 2007, Vasilopoulou Andriana’s dissertation at the Hellenic Open University (HOU) entitled “Design and Development of Material Suitable for Distance Learning of Agronomist Evaluators of ELGA (Hellenic Agricultural Insurance Organization)”, dealt with the procedure of assessing the percentage of damage caused by hail in apple production. In this dissertation, an effort was made to design, develop and test the efficacy of teaching material, suitable for distance learning of the ELGA estimators’ agronomists. More specifically, a polymorphic and interactive material has been developed, which was presented both in physical (Printed Document) and digital form (DVDs). Also, qualitative research was carried out to control the quality and efficiency of the formed material. The results obtained were very satisfactory. They demonstrated that the proposed educational material was considered interesting, original, appropriate and effective for distance appraisers of agronomists. In addition, suggestions for further improvement, completion, updating, and material development were highlighted.

In 2010, Stayas Ioannis, at the University of Piraeus, presented his Master's dissertation entitled “Learning Material in the Field of Agro-ecology: Basic Principles of Organic Farming”, which focused on a very important issue of our time. This issue is

that of the role digital technologies have in the facilitation of the access, use and exploitation of digital content related to organic farming and agroecology. For this purpose, electronic material was developed to play the role of a supportive tool in the first acquaintance of professional agronomists or geotechnical practitioners with the basic principles of the field of organic farming so that they are able to implement similar training programs for young farmers in practice. This electronic material was entitled "Basic Principles of Organic Agriculture" and could be used in open distance education - geotechnical training, as an asynchronous individual educational program over the Internet or as a complementary educational material of modern education in which communication and distribution educational material are done in the form of video-conferencing. It could also be used in the traditional type of seminars made with technical support as well as in electronic classes that can be used either as complementary to the traditional class environment or as a learning environment.

In 2011, Ropakis Andreas presented his research for the Hellenic Open University at the 6th International Conference on Open and Distance Education. His research was entitled "Designing and Developing Innovative Distance Learning Materials Based on the 4MAT Model of Mc Carthy and Comparing it with Remote Educational Material in the HOU". The research has been based on the fact that many theories and learning models have been developed in recent years. Therefore, he sought to design a universal model that supports the design and development of innovative educational material for distance learning. In order to develop this innovative educational material, he utilized McCarthy's, 4 MAT model of learning. Such approaches could be compared, in terms of the effectiveness of learning offered to trainees, with the corresponding training material that is designed specifically for the purposes of distance learning by HOU. This is also the subject of research for the paper in hand.

4 METHODOLOGY

The purpose of this survey, which was conducted in February-March 2019, was to study the motivation of adults involved in distance learning, from the specific point of view of Geotechnicians. In order to be able to investigate the above purpose, we set three separate research objectives. The first one of them was to understand the motivations of this group of people in continuing to pursue their studies, as well as determining the subject of their studies. The second research objective was to figure out whether their distance learning program of choice deals with the subject of their first degree or if it marks a new academic direction for them. The third research goal was to study the motivations that led them consider distance learning as an option.

Based on the above research objectives, we try to answer the following research questions.

Research Question 1:
What is the current employment status of the sample's Geotechnicians? In case they are employed, is their job related to their current subject of studies?

Research Question 2:
Do their distance learning studies of choice focus on the subject of their first degree?

Research Question 3:
Why do Geotechnicians choose a distance learning program in particular?

Research Question 4:
What are the incentives that led the Geotechnicians to continue their studies and, in particular, with did they decide to do that by distance learning?

The sample included eighty-five (85) Geotechnicians of higher education (University Level) who continued with their education, after acquiring their first degree, by taking advantage of a distance learning program, in order to add knowledge and skills to their existing ones. Taking into account the existing motivation theories, and especially Boschier's EPS (1971), which has been used extensively, for various categories of learners and in different forms of education, by researchers throughout the years (Dia et al., 2005; Fujita-Starck, 1990; Haefner, 1995; Michie, et al., 2001; Patsopoulou, 2016; Nikou, 2014; Vallasidou, 2005), it is aimed to understand the motivation of these learners to the maximum extent and group them by category of motivation.

On the basis of the above-mentioned research and theoretical data, the main axes of the questionnaire of the interviews were created. More specifically, the questionnaire contained 49 questions that were divided into the following axes:

a) Demographics (questions 1 to 4).
b) The second thematic axis (questions 5-7) was related to the very important question of the employment status of the participants.
c) Program training and the issues of choice. The third pillar (questions 8-17) investigated the educational level of the participants and the relevance of the curriculum they choose in conjunction with their first degree.
d) The fourth thematic axis (questions 18-25) concerned distance learning and why the respondents chose it.
e) The fifth thematic axis (questions 26-49) related to the motivations and expectations of respondents from the distance learning program. This axis is the most important, as it is the cornerstone of our research. Through the questions and answers of the fifth module we will determine the category of incentives that motivates a population group with specific characteristics - Higher Education Graduates, in productive ages - towards continuing their studies, lifelong learning and education, and even in educational programs implemented remotely.

The questionnaire was originally created with the help of Microsoft Word. Then the questionnaire was also uploaded online using Google Forms, so that it can be distributed to a wider amount of people for the sample needs to be met and a larger geographical area across Greece to be covered.

5 Data Analysis – Discussion

The first research question dealt with the employment status of our sample and wondered whether or not the current occupation of the person taking part in the survey is relevant to the subject of their studies.

The answer to this research question is reflected in the graph below, where thirty-nine (39) people (45.9%) declare full-time private sector employees, nineteen (19) people (22.4%) declare self-employed / freelancers, thirteen (13) people (15.3%) are employees in the public sector, eight (8) participants (9.4%) are unemployed and

there are four (4) participants that are occupied in the private sector with part-time employment.

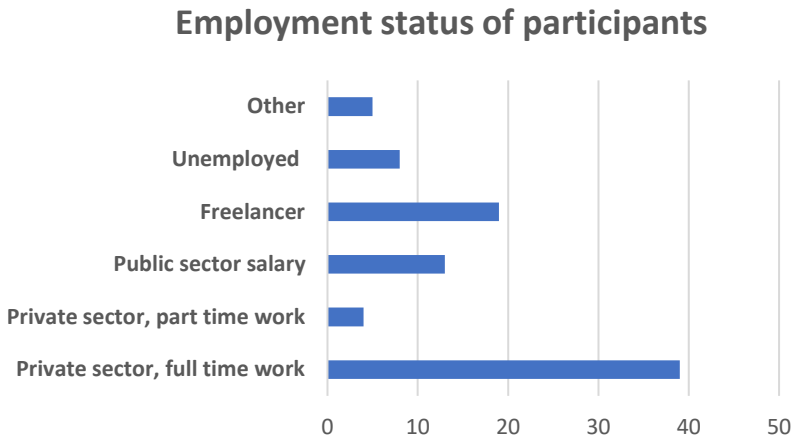

Figure 1. Employment Status of participants

The second research question dealt with the relevance between the Geotechnicians' first academic degree and the distance learning field of knowledge they chose, the outcome of which is depicted in Figure 2. According to that figure, sixteen (16) people (18.8%) chose a subject of education which was absolutely relevant to the geotechnical field, twenty-nine (29) people (34.1%) chose a subject of education which was very relevant to their field of study, twenty-four (24) people (28.2%) chose a subject of education which has a modest relevance with their field of study, while eight (8) people (9.4%) opted for education that was somewhat relevant to their field of study and nine (9) people (10.6%) opted for a program that it was irrelevant with the geotechnical field.

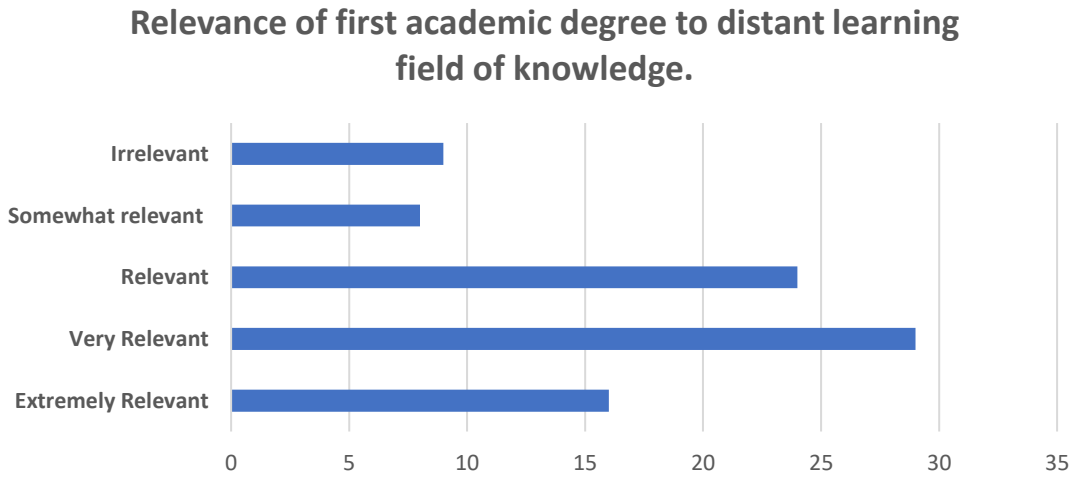

Figure 2. Relevance of first academic degree to distant learning field of knowledge.

The third research question investigates why the Geotechnicians of the sample choose to attend a distance learning program. This question was addressed using a questionnaire of a five-point Likert scale that included the following options: (1) Strongly

disagree, (2) Disagree, (3) Neither disagree, nor agree (Neutral), (4) Agree and (5) Strongly agree.

As the main reasons for selecting a distance learning program the Geotechnicians declare program flexibility with 72.4% (Agree 43.7% and 28.7% Strongly Agree), professional liabilities with 70.9% (Agree 45.3% and Strongly agree 25.6%), the lower operating expenses by 59.8% (Agree 36.8% and Strongly agree 23%) and the lack of time for monitoring a conventional program with 52.3% (Agree 31.4% and Strongly agree 20.9%). On the other hand, the choice of the under research sample does not seem to be affected by family commitments, with 49.4% of them claiming to Disagree or Strongly disagree on the matter.

Table 1. Reasons for selecting a distance learning program

		Strongly disagree (%)	Disagree (%)	Neither disagree, nor agree (Neutral) (%)	Agree (%)	Strongly agree (%)
1	Professional liabilities	11,6	7,0	10,5	45,3	25,6
2	Family commitments	25,9	23,5	21,2	18,8	10,6
3	There was no similar program with conventional education	12,9	25,9	32,9	18,8	9,4
4	Lack of time to monitor a conventional program	9,3	17,4	20,9	31,4	20,9
5	Program flexibility	6,9	3,4	17,2	43,7	28,7
6	Less operating expenses	11,5	11,5	17,2	36,8	23,0
7	People with disabilities	71,3	10,3	11,5	4,6	2,3

Finally, the fourth research question, which was also the cornerstone of this specific work, concerned the incentives our sample had in participating in a distance learning program. This question was also investigated by a questionnaire on the Likert scale.

In order to better understand and process the results of the responses the people who participated in the survey gave for this question, we grouped them by the following metrics: (1) Strongly disagree + Disagree, and (2) Agree + Strongly agree. That is in order to make the tendencies of the sample's preferences more clear. Of course, between these two distinct poles, there is still the neutral view that the respondents can decide to side with in the case they neither agree nor disagree with a point.

The most popular positive opinions are as follows: (i) 90.5% claimed “I was interested in the subject of the specific curriculum”, (ii) 85.7% said “I wanted to get a better scientific background”, (iii) 81.2% “I want to know new things", (iv) 79.8% said “Being more effective in matters related to my work”, (v) 78.8% claimed “Improve My Competitiveness” and (vi) 78.6% “I want to extend my horizons”.

Table 2. Motivation/expectation of participation from distance learning programs

	My motivation/expectation of participation when I started distance learning was	**Strongly disagree + Disagree (%)**	**Neither disagree, nor agree (Neutral) (%)**	**Agree + Strongly agree (%)**
1	Ensure better economic earnings in the future.	27,9	10,5	61,6
2	To be more effective in matters related to my work	13,1	7,1	79,8
3	Improve my position in my job	21,2	21,2	57,6
4	Change work field	42,4	24,7	32,9
5	Do more interesting things	17,9	15,5	66,7
6	Improve my competitiveness	9,4	11,8	78,8
7	Find a job	38,1	20,2	41,7
8	Higher professional security	18,8	29,4	51,8
9	To escape the routine of everyday life	30,6	27,1	42,4
10	Getting away from the problems of my personal-family life	74,4	14,0	11,6
11	Meet people	45,9	28,2	25,9
12	Make use of my spare time	32,1	27,4	40,5
13	To be prestigious in my work	22,4	25,9	51,8
14	Keep in touch with my professional environment	16,7	27,4	56

15	I believe that lifelong learning is a must for the contemporary people	15,3	17,6	67,1
16	I wanted to learn new things	12,9	5,9	81,2
17	I wanted to get a better scientific background	9,5	4,8	85,7
18	I was interested in the subject of this curriculum	7,1	2,4	90,5
19	I wanted to broaden my horizons	9,5	11,9	78,6
20	Because I wanted to satisfy my personal ambition	22,4	27,1	50,6
21	To gain higher self-esteem	37,6	18,8	43,5
22	To gain greater appreciation from my social environment	51,7	23,0	25,3
23	Because I felt that I owe it to myself	37,6	23,5	38,8

By attempting to classify these incentives using the Boshier EPS Scale, we see that the i, ii, iii & vi motives are in the category of “Cognitive Interest” and the iv & v incentives in the “Professional Advancement” category. These five categories outnumber by far all of the rest. The reason for that is because most participants are in a productive age and they take all the necessary steps they need to make in order to ensure their professional advancement and recognition by strengthening their field of knowledge.

These findings agree with the findings of international literature, since in all researches “Professional Advancement” ranks among the highest incentives for participation (it comes either first or some other times in the second place of choice) (Urbano et al., 1988; Gordon, Olson & Hamsher, 1990; Miller, 1992; Haefner, 1995; Nason, 1998; McMilan, 2003; Raghavan & Kumar, 2007).

The above incentives are also in line with the Boschier’s EPS Classification, since they belong to the “Cognitive interest” and “Professional Advancement” categories, agreeing with the conclusions of the respective surveys (Nikou, 2014). The results of the survey are also in line with the objectives set by the European Union in relation to Adult Education as a means to “promote excellence in education and skills development in order to ensure future growth based on innovative products, services and business standards in a Europe facing an aging population and with strong competitive pressures” [EU, (2011 / C 372/01)].

6 CONCLUSIONS

The aim of this research was to study the motivation of adults participating in distance learning programs from the point of view of Geotechnicians. Geotechnicians have

proved to be an interesting case as they are graduates of higher education and are engaged in the second pillar of the country's development, namely the agricultural sector. Still, they have been affected by the horrible financial recession that plagues Greece in the recent years, making for the unemployment in this specifc sector to rank very high.

The first research question dealt with the employment status of our sample and wondered whether or not the current occupation of the person taking part in the survey is relevant to the subject of their studies. As it came to be, the vast majority of our sample, with 90.6%, are employed and 78.8% have a job related to the subject of their studies. These figures are extremely high, despite the official unemployment status of the Geotechnical ranking up to 25.9%, according to the Geotechnical Chamber of Greece (July 2018).

The second research question dealt with the relevance between the Geotechnicians' first academic degree and the distance learning field of knowledge they chose. There, it seems that 81.1% of the sample has chosen an educational program with absolute to moderate relevance to the geotechnical industry. These results coincide with the results of the first research question since, as our sample is employed by 78.8% in a job corresponding to their first degree, it is to be expected from them to choose a related training programs to enhance their knowledge on their field of expertise.

The third research question investigates why the Geotechnicians of the sample choose to attend a distance learning program. The flexibility distance learning programs offer and the professional obligations the Geotechnicians might have prevailed as their options with 72.4% and 70.9% respectively, while family obligations did not appear to have any particular effect on our sample. Distance learning is a solution to the problems of adults' limited time, since through it they overcome the obstacles set to arise due to space and time limitations (Valasidou 2005).

Finally, the fourth research question concerns the incentives our sample had in participating in a distance learning program. The preferences of the Geotechnicians here, recorded the highest rates ranging from 90.5% to 78.6% when it comes to the following incentives: (i) "I was interested in the specific curriculum", (ii) "I wanted to get a better scientific background", (iii) "I wanted to learn new things", (iv) "I wanted to be more effective in matters related to my work", (v) "I wanted to improve my competitiveness" and (vi) "I wanted to broaden my horizons". Consequently, all of these incentives belong to Boshier's two EPS categories. In particular, incentives (i), (ii), (iii) and (vi) belong to the "Cognitive Interest" category and incentives (iv) and (v) in the "Professional Advancement" category.

In conclusion, this research could be expanded and used as a powerful tool to help connect the labor market with Academic Institutions and Educational Organizations. This could be possible by designing programs for Geotechnicians who wish to enrich their scientific background and learn new things but at the same time want to become effective and competitive in their work.

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